

REMARKS

In the Official Action mailed on **12 November 2010**, Examiner reviewed claims 1-2, 4-11, and 13-20. Examiner rejected claims 1, 10, and 19 under 35 U.S.C. § 103(a) based on Herlihy et al. (U.S. Patent No. 5,428,761, hereinafter "Herlihy"), in view of Ben-Meir et al. (U.S. Patent No. 5,826,073, hereinafter "Ben"). Examiner rejected claims 2, 4-7, 9, 11, 13-16, 18 and 20 under 35 U.S.C. § 103(a) based on Herlihy, Ben, and Rajwar et al. (U.S. Patent No. 7,120,762, hereinafter "Rajwar"). Examiner rejected claims 8 and 17 under 35 U.S.C. § 103(a) based on Herlihy, Ben, Rajwar, and Hecht et al. (U.S. Pub. No. 2003/0064808, hereinafter "Hecht").

Rejections under 35 U.S.C. 103(a)

Examiner rejected claims 1, 10, and 19 under 35 U.S.C. § 103(a) as being unpatentable over Herlihy in view of Ben. More specifically, in rejecting these claims, Examiner argued as follows:

Herlihy teaches [...]

each entry in the store buffer includes a data value for a store operation that is to be committed to a memory address (Column 5, lines 11-15).¹

Column 5, lines 11-15 teaches that entry in C the store buffer is manipulated with, and the result is written back or committed to memory address in A. Although Herlihy calls C a **register set**, **because it is committed to the memory, it is also a store buffer** by the applicant's definition.²

Applicant respectfully disagrees with the rejection. Herlihy nowhere discloses that **each entry** in the register set includes a data value for a store operation that

¹ see office action, page 3

² see *id.*, page 8; emphasis added

is to be committed to a memory address. Also, Ben nowhere discloses the embodiments claimed in the instant application.

Herlihy discloses a CPU that includes an internal register set.³ Herlihy discloses that values from memory can be written to internal registers, and that values from internal registers can be written to memory.⁴ Hence, Herlihy discloses that some values in registers can be written to memory. Herlihy nowhere discloses that **each entry, i.e., every entry**, in the register set includes a data value for a store operation that is to be committed to a memory address. More specifically, as was also discussed in Applicant's remarks filed 09 February 2010, **a register can include a data value that is not committed to a memory address.**⁵ Hence, because not each entry in the Herlihy register set includes a data value for a store operation that is to be committed to a memory address, the Herlihy register set cannot also be the store buffer of the embodiments claimed in the instant application.

Ben discloses a system for handling self-modifying code. The Ben system includes a register file, a store queue, and cache memory.⁶ Ben discloses writing from the store queue to memory.⁷ For example, Ben discloses the following:

When a StOp completes execution in store unit 153, the associated target memory address and store data is entered in store queue 159. Later, when the memory write for a StOp is actually committed, this entry is read and retired from store queue 159.⁸

Ben nowhere discloses the claimed embodiments. For example, Ben nowhere discloses committing store buffer entries generated during transactional execution

³ see Herlihy, col. 4, line 66, to col. 5, line 15; also, FIG. 1

⁴ see *id.*, col. 5, lines 3-22

⁵ see Applicant's remarks filed 09 February 2010, pages 9-10

⁶ see Ben, FIG. 1

⁷ see *id.*, col. 12, lines 59-61

⁸ see *id.*, col. 13, lines 20-24

to memory, wherein committing each store buffer entry involves removing the store-mark from, and thereby unlocking, a corresponding store-marked cache line.

In contrast, in the claimed embodiments **each entry** in the store buffer includes a data value for a store operation that is to be committed to a memory address. In addition, in these embodiments the store buffer is a hardware structure **separate from a register file**.

Because Herlihy, and Herlihy in combination with Ben, nowhere discloses the claimed embodiments, Herlihy and Ben cannot possibly render the claimed embodiments obvious.⁹ Applicant therefore respectfully requests the withdrawal of the rejection under 35 U.S.C. § 103 based on Herlihy and Ben.

⁹ see MPEP §§ 2141(III) and 2143.01(I)-(VI)

CONCLUSION

It is submitted that the application is presently in form for allowance.
Such action is respectfully requested.

Respectfully submitted,

By /Anthony Jones/
Anthony Jones
Registration No. 59,521

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Anthony Jones
Park, Vaughan, Fleming & Dowler LLP
2820 Fifth Street
Davis, CA 95618-7759
Tel: (530) 759-1666
Fax: (530) 759-1665
Email: tony@parklegal.com